

REMARKS

This is in response to the Office Action dated July 30, 2003. New claims 16-24 have been added. Thus, claims 1-24 are now pending.

The abstract has been shortened as suggested by the Examiner. See the changes to the abstract above in this regard.

Claim 1

Claim 1 stands rejected under 35 U.S.C. Section 103(a) as being allegedly unpatentable over Suzuki in view of Sasaki. This Section 103(a) rejection is respectfully traversed for at least the following reasons.

Claim 1 requires "a vertical alignment type liquid crystal layer . . . 4-divided domain, the first substrate includes two first regions each having an orientation-regulating force for orienting the liquid crystal molecules of the liquid crystal layer in a first direction and a second region provided between the two first regions and having an orientation-regulating force for orienting the liquid crystal molecules in a second direction that is opposite to the first direction, while the second substrate includes a third region having an orientation-regulating force for orienting the liquid crystal molecules in a third direction that crosses the first direction and a fourth region having an orientation-regulating force for orienting the liquid crystal molecules in a fourth direction that is opposite to the third direction; and the first sub-domain is formed between one of the two first regions and the third region, the second sub-domain is formed between the second region and the third region, the third sub-domain is formed between the second region

and the fourth region, and the fourth sub-domain is formed between the other one of the two first regions and the fourth region."

For example, and without limitation, Figs. 1-2 of the instant application illustrate that for a 4-divided domain, the first substrate 10 includes two first regions A1 each having an orientation-regulating force for orienting the liquid crystal molecules of the liquid crystal layer in a first direction R1, and a second region A2 provided between the two first regions A1 and having an orientation-regulating force for orienting the liquid crystal molecules in a second direction R2 that is opposite to the first direction R1 (see Fig. 2A). The second substrate 20 includes a third region A3 having an orientation-regulating force for orienting the liquid crystal molecules in a third direction R3 that crosses the first direction R1, and a fourth region A4 having an orientation-regulating force for orienting the liquid crystal molecules in a fourth direction R4 that is opposite to the third direction R3 (see Fig. 2B). As shown in Figs. 1-2, the first sub-domain D1 is formed between one of the two first regions A1 and the third region A3, the second sub-domain D2 is formed between the second region A2 and the third region A3, the third sub-domain D3 is formed between the second region A2 and the fourth region A4, and the fourth sub-domain D4 is formed between the other one of the two first regions A1 and the fourth region A4. As explained on pages 17-18 and 48 of the instant application, this claimed structure unexpectedly allows for improved viewing characteristics to be achieved.

The Section 103(a) rejection of claim 1 is incorrect for at least the following two (2) reasons.

First Reason: The Office Action admits that Suzuki fails to disclose or suggest the claimed first, second, third and fourth regions having the respective claimed first, second, third and fourth orientation-regulating directions. Admitting this fundamental flaw in Suzuki, the Office Action cites Sasaki. However, Sasaki also fails to disclose or suggest this aspect of claim 1. For example, the alleged third direction 13B2 (or the alleged third region) in Sasaki does not "cross" the alleged first direction 13A1. Thus, *even if the two references were combined as alleged in the Office Action, the invention of claim 1 still would not be met.* For at least this first reason, the Section 103(a) rejection of claim 1 is incorrect and should be withdrawn.

Second reason: Claim 1 calls for a *vertical alignment* type LC layer. Sasaki also discloses a vertical alignment type LC layer. However, Suzuki discloses an LCD of the TN type which does not use vertical alignment films. One of ordinary skill in the art would never have combined domain generating structures of a vertical alignment type LCD with a non-vertical alignment TN type LCD as alleged in the Office Action. The technologies are entirely different from one another with respect to alignment and with respect to domain generation – there is clearly no suggest in the art of record for such a combination, especially since one of ordinary skill in the art would have recognized the significant differences between the TN type display of Suzuki and the VA (vertical

TERASHITA, S. et al.
Appl. No. 10/084,363
November 18, 2003

alignment) type display of Sasaki and would never have combined such diverse technologies.

More particularly, Suzuki relates to a TN type display where the LC layer includes a two-divided domain in a horizontal alignment type system, and the LC molecules have a clockwise twist between the upper and lower substrates. In contrast, Sasaki discloses an ECB type display that uses vertical alignment. These two different technologies are quite different from one another and are not combinable as alleged in the Office Action.

Claim 15

Claim 15 defines over the cited art for the reasons set forth above with respect to claim 1.

Claims 21-24

Claims 21 and 23 require that the 4-divided domain includes two different liquid crystal twist directions in that LC molecules in the 4-divided domain have both a clockwise twist direction and a counterclockwise twist direction in the presence of an applied voltage. Claims 22 and 24 require that the first and third sub-domains comprise liquid crystal molecules twisting in the clockwise twist direction in the presence of the applied voltage, and the second and fourth sub-domains comprise liquid crystal molecules twisting in the counterclockwise twist direction in the presence of the applied voltage. The cited art fails to disclose or suggest the inventions of claims 21-24.

TERASHITA, S. et al.
Appl. No. 10/084,363
November 18, 2003

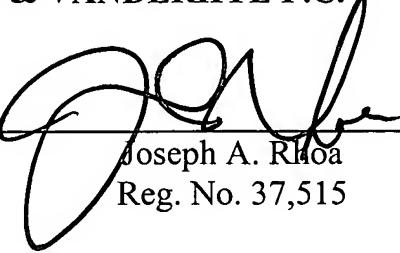
Conclusion

All claims are in condition for allowance. If any minor matter remains to be resolved, the Examiner is invited to telephone the undersigned with regard to the same.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By:


Joseph A. Rhoa
Reg. No. 37,515

JAR:caj
1100 North Glebe Road, 8th Floor
Arlington, VA 22201-4714
Telephone: (703) 816-4000
Facsimile: (703) 816-4100